What is claimed is:

1. A method of detecting antibodies in a solution comprising:

a) contacting the solution with an antigen-coated surface of a sensor chip under conditions that permit anti-antigen antibodies to bind to the antigen coating;

b) detecting the change in surface plasmon resonance signal of the sensor chip resulting from the anti-antigen antibodies binding to the antigen coating.

2. The method of claim 1, wherein the antigen is a glycolipid.

3. The method of claim 1, wherein the anti-antigen antibodies are anti-glycolipid antibodies.

4. The method of claim 1, wherein the antigen is a ganglioside and wherein the antibody is an anti-ganglioside antibody.

5. The method of claim 3, wherein the solution contains anti-glycolipid antibodies that bind to the glycolipid-coated surface of the sensor chip and alter the surface plasmon resonance.

6. The method of claim 1, wherein a control surface plasmon resonance value is subtracted from the surface plasmon resonance signal.

7. The method of claim 6, wherein the control surface plasmon resonance value comprises the signal detected from the surface of the sensor chip coated with a selected control antigen, wherein the chip is also

alternatively exposed to the solution being evaluated for anti-antigen antibodies.

8. The method of claim 7, wherein the control antigen is a glycolipid.

9. The method of claim 8, wherein the control antigen is Ganglioside GM2.

10. The method of claim 1, wherein the surface plasmon resonance signal is detected from the surface of the sensor chip coated with ganglioside GM1.

11. The method of claim 1, wherein the sensor chip comprises a glass slide coated with a gold film covalently linked to a methyl dextran layer.

12. The method of claim 1, wherein the surface plasmon resonance signal is detected using an optical detector.

13. The method of claim 1, wherein the solution is human blood or a derivative of human blood.

14. The method of claim 1, wherein the solution is human sera.

15. The method of claim 3, wherein the anti-glycolipid antibody is an Immunoglobulin G.

16. The method of claim 3, wherein the anti-glycolipid antibody is an Immunoglobulin M.

17. The method of claim 15 or 16, wherein the anti-glycolipid antibody is an anti-ganglioside antibody.

18. The method of claim 16 or 17, wherein the antibody is

human.

19. A method of determining the anti-glycolipid antibody isotype present in the solution comprising the method of claim 2 wherein the tested solution is washed from the surface of the sensor chip and a second solution containing a secondary antibody is introduced to the surface.

20. A method of increasing the optical signal size of claim 1, comprising washing the tested solution from the surface of the sensor chip and applying a second solution containing the secondary antibody to the surface.

21. The method of claim 19, wherein the secondary antibody is an anti-Immunoglobulin G.

22. The method of claim 19, wherein the secondary antibody is an anti-Immunoglobulin M.

23. The method of claim 1, wherein the method is used to diagnose a disease in a subject.

24. The method of claim 6, wherein the method is used to quantitate levels of antibodies in a subject.

25. The method of claim 23, wherein the disease is neurological.

26. The method of claim 23, wherein the disease is Guillian-Barré syndrome, motor neuropathy, peripheral neuropathy or an autoimmune neuropathy.